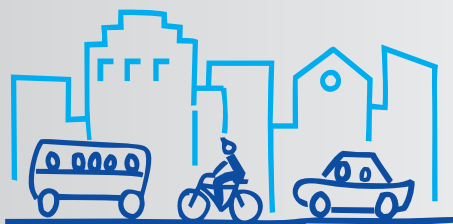


2020  
**CiViTAS**  
Cleaner and better transport in cities



# INNOVATE

FOR ADVANCED CITIES

## Manual on the integration of measures and measure packages in a SUMP



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## IMPRINT

### About

CIVITAS SUMP-UP is a 36-month project funded under the European Union's Horizon 2020 Research and Innovation Action programme. Launched in September 2016, SUMP-UP works together with planning authorities across Europe to accelerate the development and implementation of sustainable urban mobility plans and bring cleaner and better transport to cities.

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## 1. EXECUTIVE SUMMARY

This manual provides support for cities who are experienced in SUMP planning and have an ambitious vision and targets, but need inspiration for how to select and implement innovative measures. This manual aims to give inspiration for how to foster innovations via examples and tools. The manual focuses on three independent steps:

- **Finding new ways to cooperate with stakeholders and citizens and open up for participation** – cooperation and participation as the umbrella for an innovative environment.
- **Fostering new innovative measures** – different approaches that can be useful to realise implementation of new ideas.
- **Creating a strategy for innovations** – the broader strategy, when innovation must reach beyond the policy sector of transport planning.

The overall recommendation is to cooperate, since future solutions in many cases probably will be too complex for a single organisation. When collecting inspiration and ideas from other organisations and citizens, the issue will then be to adapt and realise the idea. Fortunately, there are many approaches available to tackle obstacles that might occur when trying to realise such ideas.

## 2. INTRODUCTION

Despite the Sustainable Urban Mobility Plan (SUMP) support and knowledge for local authorities that has become available within the past years, the take up of SUMP has been relatively slow. There is a need for a more systematic understanding and support for SUMP development and implementation.

This manual is a part in systemising the SUMP process and to identify the most effective planning tools and methods for the SUMP process and give guidance in key topic areas relevant for high-quality, effective and efficient SUMP development. The topic area of this manual is measure selection and packaging.

## 2.1 A product of SUMP-UP

This manual is a product of the project SUMP-UP, see Box 1 for links to more information.

CIVITAS SUMP-UP is an EU-funded project that brings together European cities, researchers, universities, environmental organisations, climate institutes, transport consultants and mobility experts into a singular initiative to help cities introduce cleaner, sustainable mobility solutions. It brings together eight partner organisations and seven partner cities and is one of the three projects related to Sustainable Urban Mobility Plans under the European Union's CIVITAS 2020 initiative.

The objective of SUMP-UP is to:

*“Enable mobility planning authorities across Europe to embrace SUMP as the European-wide strategic planning approach, especially in countries where take-up is low and the negative effects of transport are severe.”*

### Box 1: SUMP-UP

SUMP-UP is a project taking place from 2016-2020 and aims to produce several supporting materials and trainings for cities that want to develop a SUMP.

- Outreach Cities: 600 cities will be reached out to over the course of the project. With Outreach Cities, the emphasis will be on capacity building.
- Cities in the Innovation Pilot Pool: 100 cities will become members of the Innovation Pilot Pool. The Pool will facilitate significant peer knowledge exchange and be split into an expert and a leadership group.

For more information, news and supporting materials, visit: [www.sumps-up.eu](http://www.sumps-up.eu)



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## 2.2 Context of measure selection and packaging

Measure selection and packaging are highly important parts of the overall process of developing a SUMP. Mobility policies and measures are at the heart of the planning approach for sustainable urban mobility planning. The general process regarding this subject is further described in the SUMP Guidelines, see link in Box 2.

Measure selection can be a challenging task due to several reasons, as described in the measure selection manual developed within the European project CH4ALLENGE. For example, there is a wide range of possible measures which can make the selection process complex, many stakeholders have preconceived ideas of what to do and the selected measures must be feasible to implement (May, 2016).

The general guidance and information available about measure selection (see Box 2) makes a strong foundation of how to approach the measure selection process.

However, guidance has to be better adapted for practitioners in different types of cities. The wide range of cities with differing conditions in Europe implies that the challenges to select the right kind of measures depend on how mature a city is in terms of sustainable urban mobility planning, but also on the city's baseline. The three manuals on integration of measures and measure packages published by SUMP-UP provide targeted guidance for cities with different levels of SUMP experience.

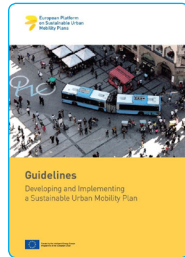
### Box 2: Guidelines for SUMP planning

#### Guidelines: Developing and Implementing a Sustainable Urban Mobility Plan

The SUMP Guidelines are available on the ELTIS-platform, [www.eltis.org/guidelines/sump-guidelines](http://www.eltis.org/guidelines/sump-guidelines).

These guidelines are intended for urban transport and mobility practitioners and other stakeholders involved in the development and implementation of a Sustainable Urban Mobility Plan.

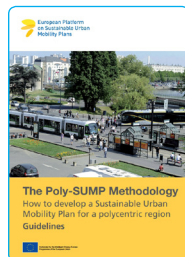
The guidelines are introducing the concept and the benefits of Sustainable Urban Mobility Plans and contain a description of the 11 steps of the SUMP-process (Rupprecht Consult, 2014).



#### The Poly-SUMP Methodology: How to develop a Sustainable Urban Mobility Plan for a polycentric region: Guidelines

Based on the SUMP process there are also guidelines available for how to develop a Sustainable Urban Mobility Plan for a polycentric region.

[www.eltis.org/sites/eltis/files/tool/polysump-sump-guidelines-final.pdf](http://www.eltis.org/sites/eltis/files/tool/polysump-sump-guidelines-final.pdf).



#### Measure selection: Selecting the most effective packages of measures

For more information about the theory and evidence behind measure selection, see

[Measure selection – Selecting the most effective packages of measures for Sustainable Urban Mobility Plans](#). The

publication produced in the CH4ALLENGE project gives a wide introduction to the subject measure selection, how measure selection is an important part in sustainable urban mobility planning and what evidence and principal constraints there are regarding measure selection.

[www.sump-challenges.eu/kits](http://www.sump-challenges.eu/kits)



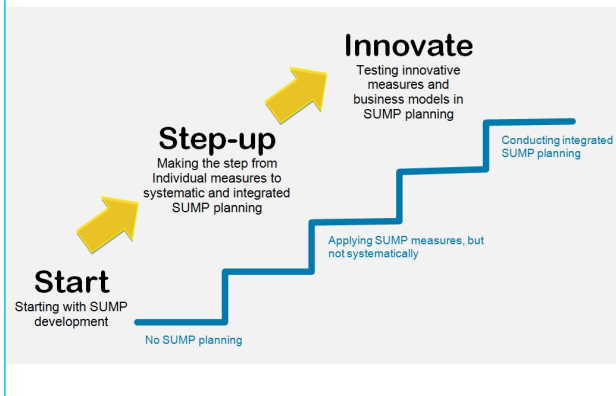
## 2.3 Overview of the manuals

The CIVITAS SUMP-UP project has designed three manuals for the integration of measures and measure packages in a SUMP. The manuals aim to support cities that follow or want to follow a measure driven approach for more comprehensive planning, and that want to develop measures and measure packages as a part of their SUMP process. The manuals focus on specific challenges that cities with different level of maturity and experience in SUMP planning may face in the measure selection process. As illustrated in figure 1 below, the three manuals are tailored to give support to cities who; are starting the SUMP development (Start version of the manuals), are making the step from Individual measures to systematic and integrated SUMP planning (Step-up version of the manual) or Testing innovative measures and business models in SUMP planning (Innovate version of the manual). Cities may also find inspiration in each of the manuals regardless of which level they currently belong to.

Each of the manuals follows the same structure. Firstly, an introduction section gives an overview of the context of measure selection and packaging in a SUMP. Secondly, the main section consists of the actual manual in either the "Start", "Step-up", or "Innovate" version. Thirdly, endnotes provide references to other relevant sources of knowledge and inspiration. Inspiration is given in green and yellow boxes, recommendations for "what to do" are presented in tables and blue figures while examples are presented in red text in tables and figures.

The manuals are designed to be used as a source of knowledge and inspiration for city planners and others involved in the SUMP process. The manuals do not claim to provide the only valid recipe for measure selection and packages for each city, but are rather designed to be a guidance and inspiration through the process of integrating measures and measures packages in a SUMP. They specifically focus on how to address city-specific preconditions, challenges, and targets in that process.

Figure 1: Schematic overview of the three manuals.



**Start – Starting with SUMP development (this manual)**

This manual provides guidance to cities that would like to get started with SUMP development. The addressed cities typically want to take the step from the daily business of “keeping the wheels spinning” to a more strategic planning for sustainable mobility in the city. The target group are cities that are not yet familiar with sustainable urban mobility planning and need support with where to get started in the context of measure selection.

The issues to be addressed are how to start from scratch with long-term, strategic planning for measure selection, how to gain instant impact from selected measures, and how to find a balance between the ambition of the SUMP planning and the capacity of the city’s administration.

Compared to other available guidelines, the Start-manual suggest a simplified approach that lowers the entry barrier for cities that are starting with SUMP-planning. This is needed, because relevant information such as quantitative data, traffic models and extensive analyses are sometimes missing in starter-cities, which can make the advanced

measure selection approaches recommended in other guidance’s impractical.

**Step-up – Making the step from Individual measures to systematic and integrated SUMP planning**

This manual provides support for cities that are familiar with sustainable urban mobility planning. The typical step-up city is already applying typical SUMP measures, but not yet systematically. Measures may have been implemented for one or many challenges, policy fields and/or transport modes. The city would like to widen their SUMP planning to find synergies and to synchronise measures between different policy areas or other policy sectors.

The issues to be addressed are how to apply a systematic and effective approach in measures selection, how to find synergies between different types of measures and policy areas, how to adapt new fields of measures into what has already been done within the city and to find ways to be more systematic when packaging measures.

**Innovate – Testing innovative measures and business models in SUMP planning**

This manual provides support for cities who are experienced in SUMP planning, for example by having developed a second or third generation of their SUMP. The typical target city has integrated SUMP planning with an ambitious vision and targets. The city has a systematic way to approach measure selection among a wide range of policy areas, but needs guidance in how to select and implement innovative measures and business models in order to reach the next level of development in SUMP planning.

The issues to be addressed are how to find new ways to further develop measure selection and integration, in particular how to find ways to co-create actions with other actors (within the city, region, other cities, private sector, and other public organisations) to develop truly innovative measures.

### 3. INNOVATE

## TESTING INNOVATIVE MEASURES IN SUMP DEVELOPMENT

Within the SUMP-UP project, a needs assessment survey was conducted during the beginning of 2017 asking cities in Europe about their SUMP experience. Out of 328 responses, 44% of the cities had conducted integrated sustainable urban transport planning.

On a question regarding SUMP activities, 14% of the cities answered that they are in the phase of evaluation and revision

of the previous SUMP or are preparing their 2nd or 3rd generation SUMP, see table 1. This indicates that the amount of cities that are highly experienced in SUMP planning still is rather low. Nonetheless, these experienced cities are the ones who need to be on the forefront when it comes to finding new and innovative ways of dealing with challenges in the transport system.

**Table 1: Number of participating cities for the three city types defined on the basis of SUMP experience (Q5) and the status of SUMP activities (Q6) in the city (results weighted by country population). The full version of the survey report is available at [www.sumps-up.eu/reports](http://www.sumps-up.eu/reports).**

	DEFINITION	N	%	DEFINITION	N	%
<b>Starter city</b>	City is not yet familiar with sustainable urban transport planning.	49	15%	<ul style="list-style-type: none"> <li>No activities</li> <li>Considering to develop first SUMP</li> <li>Developing first SUMP</li> </ul>	145	44%
<b>Intermediate city</b>	City has already applied sustainable urban transport measures, but not systematically.	122	37%	<ul style="list-style-type: none"> <li>Finalised SUMP waiting to be adopted</li> <li>SUMP is adopted but not implemented</li> <li>Implementing the SUMP</li> </ul>	105	32%
<b>Experienced city</b>	City has already conducted integrated sustainable urban transport planning.	145	44%	<ul style="list-style-type: none"> <li>Evaluation and revision of the previous SUMP</li> <li>Preparing 2nd/3rd generation SUMP</li> </ul>	45	14%
<b>Other</b>		11	3%		33	10
<b>Total</b>		328	100%		328	100%

When a city has conducted integrated SUMP planning for one or more generations, the benefits from a single measure or package of measure might decrease for several reasons. Efforts to upgrade the existing infrastructure, streamline the organisation and to implement policy measures have shown positive results and the city is on its way to meet more ambitious targets. However, when it comes to finding measures that will further increase benefits, balancing a complex external environment with rapidly evolving mega trends such as automation, electrification, shared mobility and connected vehicles, experienced cities might need to innovate new types of measures, business models and cooperation methods. These needs might also emerge among less experienced cities, for example due to lack of funding or capability within the city's administration.



### Evaluate new technologies and implications

Before entering an innovation process, it is recommended to analyse the present status of trends and forecasts which influence SUMP-planning and implementation.

As development within the field of urban mobility is rapidly evolving, a constant analysis of trends is necessary. Today, no long-term plan should be written without a degree of flexibility, because predicting the future might be harder than ever.

Developing a plan out from potential major influences from new technologies, trends and new innovative measures can give a desired flexibility in future mobility planning. One example of an assessment dealing with these questions is shown in Box 3.

#### Box 3: Assessing impacts and implications for the City of Melbourne

The City of Melbourne has developed an impact and implication assessment regarding emerging transport technologies. The document explains and defines emerging technologies in transport and describes the impacts and implications for the city. One conclusion is that the technologies considered will have wide ranging impacts on the municipality, and depending on how policy tools are applied, the innovations could support or hinder the City of Melbourne's strategic objectives. For each impact, one or more actions are suggested, designed to support and complement the goals in the Council plan and Transport strategy (Institute for Sensible Transport, 2016). Following Melbourne's approach, suitable measures and action for new technologies can be derived using four steps:

1. Describe emerging technologies in the transport sector (desk research)
2. Interview stakeholders associated with the new technologies
3. Describe possible impacts and implications
4. Suggest measures and actions to avoid hinders and barriers

### Create preconditions for innovation in the field of SUMP-measures

Guidance for innovative SUMP measure development are described in following sections in three independent steps. The steps are described from the perspective that cooperation with citizen and stakeholders is an umbrella to foster new innovative solutions.

If there is successful cooperation taking place, new ideas for innovative solutions and measures will be raised. The process from an innovative idea to an integrated measure will be fraught with different types of barriers. The guidance in the second step provides inspiration via different approaches and tools to use in order to tackle these different kinds of barriers that might be encountered.

To accelerate an innovative approach covering more policy sectors, the third step illuminates the need of a strategy for innovation:

- Find new ways to cooperate with stakeholders and citizens and open up for participation
- Foster new innovative measures by tackling barriers to innovation
- Create a strategy for innovation

To provide examples of different innovative measures taking place in European cities, descriptions of city cases are presented in section 3.4.

### 3.1 Find new ways to cooperate with stakeholders and citizens and open up for participation

A city plays a significant role in the process of increasing sustainable transport modes. However, there are other stakeholders with just as important a role in the spectrum of all the different policy fields. Cooperation among different stakeholders is a key factor to success with SUMP planning. This is not a new conclusion, and cooperation among stakeholders is taking place in all possible policy sectors in European cities. However, ambitious targets and rising challenges sometimes demand new ways to cooperate among stakeholders.

The foundations of institutional cooperation have been described in the CH4ALLENGE-project, describing four cornerstones for successful cooperation:

- Preparing well for institutional cooperation
- Identifying relevant partners
- Involving the relevant stakeholders
- Agreement on responsibilities

Further background to institutional cooperation is described in Box 4.

#### Box 4: Institutional cooperation

The manual *Institutional cooperation - Working jointly with institutional partners in the context of Sustainable Urban Mobility Plans* contains more information about institutional cooperation.

[www.eltis.org/sites/eltis/files/sump-manual\\_cooperation\\_en.pdf](http://www.eltis.org/sites/eltis/files/sump-manual_cooperation_en.pdf)



The manual produced in the CH4ALLENGE-project gives an introduction to the subject institutional cooperation, on how to prepare, identify and involve relevant partners and how to agree on responsibilities.

Within the field of institutional cooperation, certain methods have proven useful to structure creative cooperation.

#### Future search workshop

Cooperation involving different stakeholders and business models needs a broad foundation in a common vision. Also, when discussing separate measures, a flexible platform for creating that common ground and an action plan for the specific measure can be useful. One model that can be useful in this case is the Future Search Workshop, which is further described in Box 5. This model has been applied in the SUMP context before (Development of the Poly-SUMP methodology), but it can also be a useful method when it comes to trying out complex and innovative single measures where cooperation among different stakeholders is necessary. As the methodology is based on physical presence from stakeholder representatives during a three-day workshop, there are many opportunities to find new ways to develop and implement innovative measures that have not been tried before.

#### Box 5: Future Search Workshop

A Future Search Workshop is a tool for better decision making. This tool can be useful to create a common ground but also to create a draft action plan in three days. As the tool was used and partly adjusted to fit in the Poly-SUMP methodology (Sustainable Urban Mobility Plan for a polycentric region, [www.poly-sump.eu/home](http://www.poly-sump.eu/home)) it is closely connected to the SUMP methodology and can be adapted also as a future search within a city. Depending on where a city is in the process, the tool can be adjusted to fit its purposes as a complement to the ordinary measure selection process. For more information of how to plan and implement a Future Search Workshop for a SUMP, see the practical guide, [www.poly-sump.eu/tools](http://www.poly-sump.eu/tools).

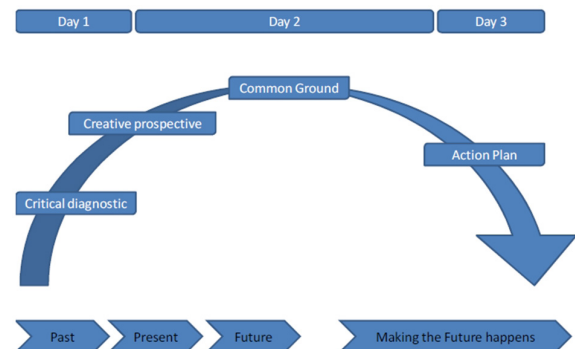


Figure 2: Future search workshop.  
Source: Missions Publiques, n.d

## Living Lab/City Lab

A City Lab is a forum for knowledge sharing for sustainable development. The aim with a City Lab is often to create a platform for innovation, to try out new measures and to develop a constructive process where stakeholders with different interests and time-perspectives can participate and work together (Building green in Sweden AB, 2016). Living Labs are public spaces where citizen can co-design innovative city services. The solutions that come out of these kinds of platforms often prove to be effective and cost efficient, but also well received by the public for the simple reason that they are designed by the public (The World Bank and European Network of Living Labs, 2015).

CIVITAS CityLab – City Logistics in Living Laboratories is an EU funded project with the objective to develop knowledge and solutions for strategies, measures and tools. In the project, cities test and implement innovative solutions within the field of urban freight and logistics (CityLab, 2017). Within the project, linkages will be established between different City Labs for exchanging experiences, but the broader idea of creating a City Lab in a city for public and private partnership is something that can be used elsewhere to approach new innovative measures.

A City Lab can be relevant for SUMP planning for several reasons. For example, a lab can be a platform where synergies between different policy sectors can be found and developed and new cross-sector innovations can be invented.

## Citizen involvement and crowdsourcing

Involving citizens to provide information to planners regarding lacks and faults in the traffic related environment is a well-used method. It is also common in many European cities to open up a citizens' initiative to gain new ideas of improvements and desired measures. Citizens can benefit from this, as they become more involved in the democratic process and can participate in the city's development. Planners can benefit due to better acceptance of measures and decisions, and also by using the two-way communication to see reactions to planned measures but also to persuade citizens to test new measures (Jaspers 2014).

The next level of citizen involvement is to allow participation and contribution towards creative and innovative solutions. This can be done by using several approaches. Two examples are presented in the list below:

- **Gamification** – An approach to increase the user-engagement with a certain material or product. By designing a game and making it available for a desirable target group, valuable input can be collected, e.g. behaviour or traffic violations in a certain street design. The City of Bremen used gamification to make a survey when conducting their SUMP in 2014. The game allowed the users to create their own scenarios for the development of the city (Bremen 2014).

## CITY CASE – Examples of starter measures

### Living Lab – Munich

In Munich, a living lab has been set up within the CIVITAS ECCENTRIC project. The Living Lab, located in the area of Domagkpark & Parkstadt Schwabing, aims to create a reduction of car usage accompanied by attractive and affordable alternatives. The Living Lab focuses on finding integrative and innovative approaches for the transport system to ensure a functioning, ecologically compatible and socially acceptable mobility supply. The Lab contributes by (CIVITAS 2017):

- Providing input for new modes of citizen participation/involvement
- Supporting the integration of residential development, planning of infrastructure and innovative mobility services and procedures.
- Supporting Munich in meeting environmental targets (air pollution, noise)

Stakeholders in the laboratory area (a newly developed housing area still under construction) will be neighborhood associations, quarter housing cooperation networks and various building developers. Until then, a consortium of developers and the city administration develops the concept together with neighborhood associations and local community centres. Measures within the area of sustainable and shared mobility, mobility management, city logistics and road safety are planned and will be monitored and evaluated after implementation. E-trike-sharing, interactive mobility training and a Neighbourhood-oriented Concierge System are examples of innovative measures that will be tested. Several measures are being developed with a participatory approach. For example, residents can submit ideas for services they would like to see in the concierge offering (Belter, Lindenau, Mück, Helf 2017).

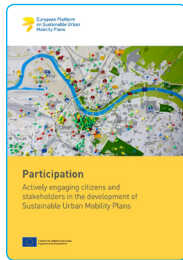
- **Hackathon** – An event aiming to create usable software to address a certain challenge by inviting computer programmers and software developers. For example, the Youth For Public Transport (Y4PT) Foundation is organising a global transport hackathon during 2017 with the aim to advance the transport sector towards sustainability (Y4PT 2017).

For more information about participation, see Box 6.

**Box 6: Participation**

How to actively engage citizens and stakeholders in a wider discussion regarding SUMP development is well described in the Participation manual. The manual, a product of the CH4LLENGE-project, provides a broad introduction to the subject of participation, including useful tools and examples of real life cases.

[www.eltis.org/sites/eltis/files/sump-manual-participation\\_en.pdf](http://www.eltis.org/sites/eltis/files/sump-manual-participation_en.pdf)



### 3.2 Foster new innovative measures by tackling barriers to innovation

When approaching innovation in SUMP measures there can be different types of barriers that might occur in the process of implementing an interesting idea. In the following section, five different approaches are described in order to provide inspiration for how to overcome different types of barriers.

#### Test innovative solutions for sustainable urban development - When the idea is clear but there is a lack of resources

Urban Innovative Actions (UIA) is an initiative of the European Union that provides resources to urban areas to test new innovative solutions. The initiative has a large budget and funds are given to tenderers after a successful proposal. There are different calls for proposals, and the last two will contain four different topics each. The remaining calls for proposals in the project will be in 2017 and 2018 (UIA 2017). For further information on the initiative, please visit [www.uia-initiative.eu/en](http://www.uia-initiative.eu/en).

#### Procurement of innovations and request for information - When the idea is clear but the market offer is unknown

When approaching new technical possibilities that could be an asset to solving mobility challenges, it is not certain that there are products and services on the market ready to be implemented. For example, new innovative technologies such as intelligent transport systems, open data sharing and new types of vehicles or new business models for integration of different transport modes (such as mobility as a service-solutions) might seem promising, but the applicable solution is not available at present.

For these situations, the procurement process can be useful to form new innovations. Finance and public procurement issues are crucial for SUMP implementation. Two procurement methods to foster innovation regarding SUMP measures are described below:

- **Request for Information**

A Request for Information (RFI) is not a solicitation for a bid of work but instead a way for the stakeholder to collect information on possible solutions before the procurement documentation is prepared. This method is one possible way for a city to let the market and third parties contribute to finding solutions on new innovative measures. The information gathered from the RFI can then be used in the procurement process (Negotiations, 2017).

- **Public Procurement of Innovative Solutions**

Public Procurement of Innovative Solutions (PPI) is a way for the public sector to act as an early adopter of innovative solutions that are not yet available on a large-scale market. It is a procurement method supported by the European Commission because it can help with modernising public services with higher quality and more cost efficient solutions and also boosting a particular new market for innovative solutions (European Commission 2017).

**Box 7: Example of a RFI/PPI for an innovative mobility measure**

In 2014 the public transport authority in Region Västra Götaland (a region in southwestern Sweden) named Västtrafik performed a field study where 70 persons were invited to try a combined mobility service for six months. The service combined public transport with other transport and spin-off services. Due to good results Västtrafik was given the assignment to offer a more complete travel-service, combining different modes of transport (Mobility as a Service). To gain the requisite knowledge for a successful procurement, Västtrafik launched a RFI which was given much attention in the media.

After a process involving 65 companies, 28 individual meetings and 25 complete answers, it became clear that the initial idea of the procurement was associated with a great risk. Instead Västtrafik has launched a project to open up access and data digitally for others to enable public transportation as a part of free-standing MaaS-concepts. The project will ensure that a number of the resellers of public transport tickets also offer tickets/payment for other mobility services. This is a concrete example of how an RFI can be useful when approaching new innovative measures (Västtrafik 2017).

**Business model development**

**- When the idea is clear but the financial viability is unknown**

When approaching innovative measures based on new technologies or policy regulations, the financial viability must be identified, especially if the private sector is involved. The elaboration of a business model for a certain mobility service can be crucial if the measure is to be implemented. A business model framework can take its form in a number of different ways, and one decision to make is whether to use a pre-established model or develop a new framework. Key questions for evaluating a business model compared to the business ecosystem and its evolvement can be seen in figure 3, based on Teece (2010).

Figure 3: Key questions to ask about a provisional business model. Source: Teece, 2010

**How will the product/service be used?  
How is it a solution to the customer's problem?**

**What might customers be enticed to pay for value delivered?**

**Do competitive offerings exist?**

**Where is the industry in its evolution?  
Has the dominant design emerged yet?**

**What will it cost to deliver value to the customer?  
Are costs volume sensitive, and if so, how?**

**How large is the target segment?**

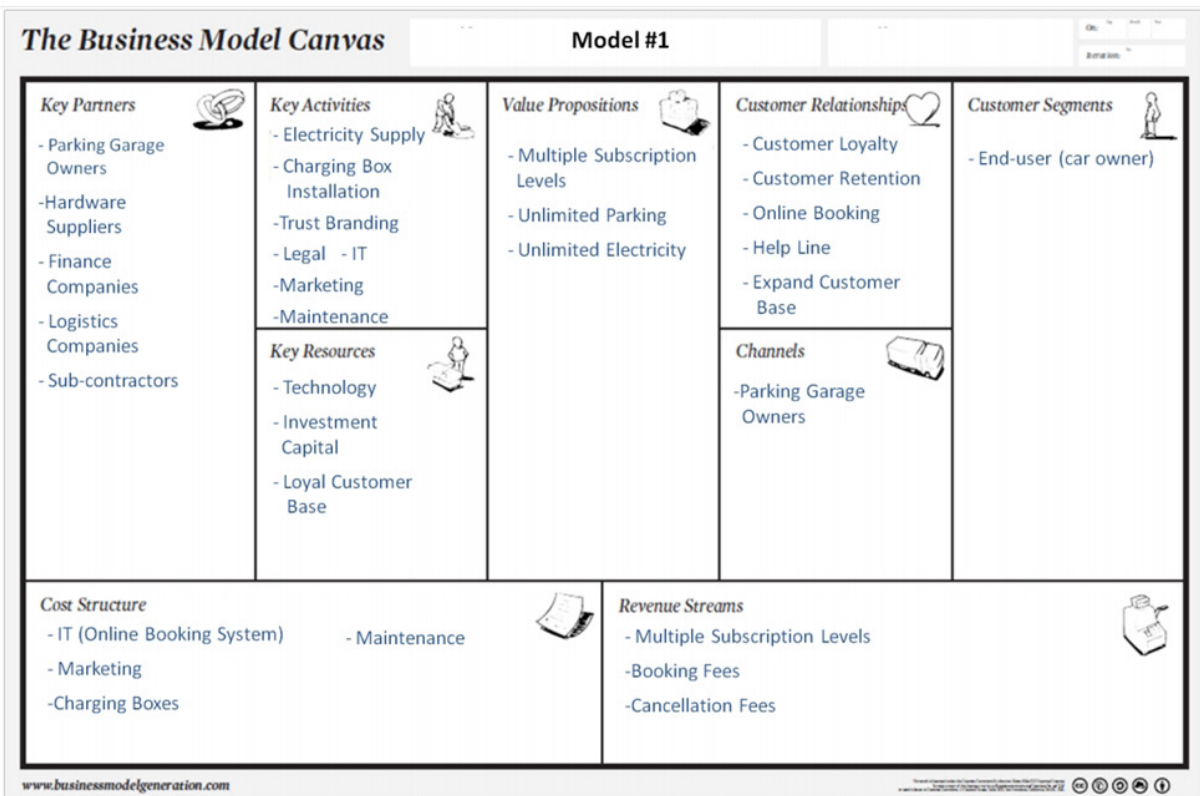
**How should the product be presented as a solution to customers' problem, and not merely a novel item/gizmo?**

To answer these questions, a Business Model Canvas can be useful. The tool is helpful in making complex concept easy to understand, whereby it is necessary to focus the initial discussion on the mobility measure itself, not on the complex organisational structures behind it. For example, the use of a Business Model Canvas can help illustrate the need of a profitable market for a new mobility service to decision makers in public organisations. Due to the nature of public means and investment, that is an issue that is often less important in regular transport planning-measures operated by public organisations. The canvas can be printed out and

made available for a group of people to sketch and discuss a specific business model.

As an example of a Business Model Canvas, a case investigating a business model for diffusion of e-mobility infrastructure (to encourage parking garage owners to install charging infrastructure and to incorporate incentives for end users) is presented in figure 4. The canvas layout is one of the most common used today, see <https://strategyzer.com/canvas/business-model-canvas> to download a canvas.

Figure 4: Example of how a business model canvas can be used to frame the business model for diffusing electric mobility infrastructure and creating demand for this new technology. Source: Castello Branco et al. 2012





One example how a business model thinking can be applied in SUMP-related measures is the EU-project SMARTSET, see Box 10.

#### Box 10: Example of a business model applied in a SUMP related measures

In the EU-financed project SMARTSET, a business model canvas was used to find business models aiming to show how freight transport in European cities and regions can be made more energy-efficient and sustainable through better use of freight terminals. A key factor was to find a more sustainable economic model for all stakeholders involved.

A conclusion from the project was that a freight distribution service must be financially self-sufficient within a short period of time so it becomes independent from public subsidies. To achieve this, a feasibility study must be done and must include an appropriate demand assessment (Vagi et al. 2014). For that purpose, a business model canvas can be a useful tool when project is initiated. For the full set of conclusions from the project, see

<http://smartset-project.eu>

#### Full scale trial for complex and/or new innovative measures

##### - When the idea is clear but the reaction and behaviour among the public is unknown

Trials and temporary attempts for measures regarding regulations or physical environment can be a useful in many situations, not only regarding new innovative measures. Rather than determining the effects of the measure itself, trials are often used to test a well-known measure in a local context, also with the purpose to gain acceptance of the measure by citizens, politicians or other stakeholders. When testing a completely new measure, the aim can be both to evaluate the measure itself as well as to investigate how the innovation works in practice. When testing a full-scale trial for new mobility measures it is recommended to organise an ambitious research plan to fully be able to draw conclusions from the trial and to give a proper foundation of data to decision makers. In Box 11, examples of two different types of full scale trials of new measures are presented.

#### Box 11: Examples of full-scale trial measures

- The Stockholm Trial was a congestion tax trial which took place between August 2005 and July 2006. The congestion tax was levied between January and July 2006, since the first six months was dedicated to extending the public transport system. After evaluation, the trial was made permanent due to good results. One conclusion from the trial was that both the public and enterprisers were more positive about the trial and the taxes after they had gained their own experience of the perceived benefits and disadvantages (Stockholmsförsöket, 2006).
- New York's Times Square pedestrianisation is another example of a full-scale trial measure. The Green Light for Midtown Project started in 2009 as a temporary pilot with new pedestrian areas in Times Square and Herald Square alongside extensive safety improvements in the Broadway-corridor. The pilot was concluded after a thorough feasibility study that collected a large set of data. After evaluation, several positive impacts led to the decision to make the changes permanent in 2012. The positive impacts included traffic flow, travel speeds, fewer injuries and public acceptance (New York City DOT 2017).



## Assessment methods for master planning and infrastructure projects

### - When the idea requires cooperation between private and public partners connected to land use planning

As many innovative measures regarding shared mobility, parking and urban logistics often demand close cooperation between property and infrastructure owners, a cooperation platform is a good way to lower the barriers for innovations that demand participation from several local stakeholders. The combination of the two sectors (real estate and mobility planning) provides an opportunity to find new innovative measures to encourage sustainable means of transport for those who live in and visit the block or a specific building.

Today there are many different types of certificates and assessments methods focusing on, for example, energy efficiency and impacts from building materials. Energy consumption from certified buildings has in many projects, due to these assessment methods, been signified lower than normal. Regarding innovative measures for SUMP development, some of these assessment methods and standards also provide a framework for how to address transport as both a problem and a solution in a new building or area of the city.

These kinds of assessment methods are relevant for innovative SUMP-related measures not only to ensure the quality of the mobility standards for a certain project, but also as an innovative cooperation platform among the private and the public sector. For example, green travel plans can be one way to meet the demands for the assessment and to secure developer contributions and land use designed to support public transport, walking and cycling, sustainable freight logistics and car independent lifestyles. One benefit highlighted with this way of addressing local challenges is that working with property companies and their supply chains provides an opportunity to identify innovations and

bring them into the assessment process (BREEAM, 2017), which is also highly relevant for finding new innovative measures for sustainable urban mobility.

As some of the most common assessment methods of today have their origin and focus on energy and quality of buildings, the mobility criteria are still under development. Mobility planners and city representatives can contribute to this development by demanding higher quality standards regarding the mobility aspects of new housing and office developments, such as parking for bikes and cars, freight solutions, car and bike sharing schemes, etc. See Box 12 for examples of two of the most established assessment methods today.

#### Box 12: Example of sustainable assessment methods

BREEAM is a sustainability assessment method for master planning projects, infrastructure and buildings. One of the standards is designed for communities, which has many contact points with urban mobility planning. One of the challenges BREEAM aims to address is transport, encouraging better access to sustainable means of transport for building users. For more information, see [www.breeam.com](http://www.breeam.com)

LEED is a non-profit organisation and a well-established assessment method developed in the US. Among the different certifications bonus points can be achieved for innovative solutions within the project. For more information, see [www.usgbc.org/leed](http://www.usgbc.org/leed)



### 3.3 A strategy for innovation

As the rapid transformation of the transport system is a hot topic in many day-to-day discussions among planners in European cities it can be a wise policy action to gather knowledge, define trends and define future possibilities in a strategy document. New technologies and behavioural trends have an impact on many different policy fields and sectors, and possible innovations over sectorial borders can be fostered if there is a common innovation strategy.

#### Innovation strategies

Many cities have developed strategies for innovation or sustainable competitiveness. The strategies are often written from a broader perspective, but they can also be written from a narrower approach focusing on the transport sector.

The European Institute for Cooperative Urban Research has conducted a study analysing several innovative urban development strategies. One key takeaway is the importance of managing urban mobility, as sustainable competitiveness requires excellent accessibility. According to this, urban mobility is a key factor not only for innovations within the sector, but also regarding competitiveness in more general terms (iUrban, 2014).

An ongoing project named Urban Mobility Innovation Index aims to provide insight and guide cities to foster innovation in their urban mobility services and systems (Box 12). The project is currently collecting data from cities globally to create an index. As a control to see if cities have a grounded view of how to approach innovations and if cities have the capability to deploy innovations, three levers has been developed. One of these levers highlights the need of a strategy regarding innovation in urban mobility (UMii, 2017):

- Strategy – How city stakeholders look at innovation in urban mobility, drivers for the strategy, process to achieve a common vision and ownership of the strategy.

#### Box 13: Urban Mobility Innovation Index

Urban Mobility Innovation Index (UMii) is setting up a Forum where cities contributing to the index can exchange knowledge and learn “best and next practices”. The UMii Forum is a platform supporting city leaders and their officials to develop policies and conditions that result in innovative mobility solutions. Roads and Transport Authority in Dubai (RTA) is the initiator and main sponsor of UMii.

For more information, see the project web-site:

<http://umi-index.org>

The previous described approaches to foster new innovative measures by tackling barriers to innovations are assuming that the city administration itself leads the development of new innovative mobility measures. One aspect to highlight in terms of Innovation Strategies for cities is the fact that advances in technology and new customer expectations sometimes question the role of a local transport authority as the innovative leader in a city. The private sector has over the past years become more and more involved in mobility services offered in our cities (e.g. floating car sharing, satellite navigation, public transport tickets in smartphone-apps) (Polis 2017). Therefore, it is important for cities and other transport authorities to also embrace the opportunity for cooperation with the private transport market regarding an innovation strategy.

### 3.4 Examples of innovative measures taking place in Europe

There is a continuous stream of innovations taking place in European cities within SUMP planning. To inspire and to exemplify different areas where new innovative measures are being developed, the following section presents measures that are being implemented at the moment.

#### Turin - Cooperative driving: Taxi sharing measure



In June 2017, the City of Turin started the implementation of an innovative measure on cooperative driving with the direct involvement of the local TAXI Associations: a taxi on demand sharing service. The measure aims to foster the use of taxis by making the fare more convenient and competitive (share the ride and reduce the cost per single passenger) and the service more transparent (fixed fares defined through quotes). In collaboration with MOVEPLUS Ltd. – an innovative start-up – the new service WETAXI is both an on demand and pre-booked sharing service and allows for the real time sharing of the ride on any route with no reservation fee. WETAXI is built on an already existing technology, Easymoove by Move Plus Ltd, and has been modified for use by taxi-sharing. For more information, visit: [www.wetaxi.org](http://www.wetaxi.org).

#### Thessaloniki - Introduction of a smart card and fare collection system for current and future transport modes (network integration)

Two new public transport modes are expected to be soon operational in Thessaloniki, namely metro (with two lines) and maritime transport. For this reason, ThePTA has investigated how the introduction of a smart card and fare collection system can gradually replace the paper tickets that are currently being used in buses, which at the moment are the



only available public transport mode in the city. The measure will be implemented initially in buses and at later stage will be expanded in metro and maritime transport as soon as those modes become operational. The innovative force in this measure lays in the future, where the system gradually will expand to also include other uses like park and ride, taxis, etc.

#### Birmingham – H2020 OPTICITIES project developing Traffic Management Decision Support Tools

In Birmingham, the City Council is responsible for the management of the urban and inter-urban road network within the city boundaries and the efficiency and operation of the road network is an essential element for achieving the objectives of the city's SUMP, Birmingham Connected.

Birmingham has a long association with the development and use of Intelligent Transport Systems that exploits the use of Urban Transport Management and Control (UTMC) technology. However, use of traffic management strategies, management of congestion and reaction to incidents and events is still largely based on reactive actions whose effectiveness can be undermined due to the time taken to define and implement a suitable reaction to the problem.

Therefore, Birmingham was been involved in the H2020 OPTICITIES project, which is developing Traffic Management Decision Support Tools to enable traffic management decisions to be implemented based on traffic conditions/issues. The system learns from trends and implement the most effective changes to signals based on historic experience for achieving the most positive outcomes.

The OPTICITIES project developed a collaborative approach between public and private stakeholders. In this vision, European cities consolidate all mobility data available at the



local level and provide it to service operators through a standardised gateway.

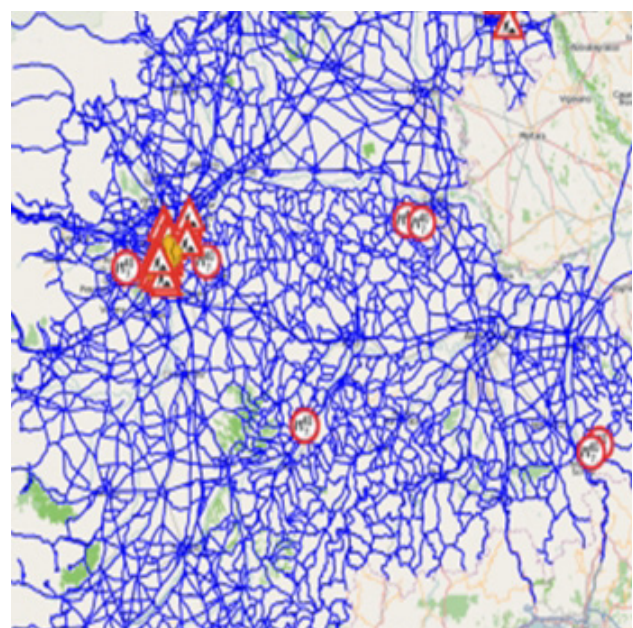
The OPTICITIES project in Birmingham was focussed on developing improved standards for multi modal journey planning. It did this through a number of pilot projects, and as part of the project a Decision Support Tool (DST) was developed that had the following three purposes:

- Collate data from all the traffic sensors (loops, cameras, etc.) and identify unexpected information in this data that might be indicative of a road traffic incident (either accident, unexpected congestion, etc.) (These were called 'alerts')
- Attempt to project the impact of this incident 30 minutes into the future, to give an indication of the magnitude.
- Recommend strategies that could be implemented to mitigate these issues. The recommended strategy could either be automatically implemented or manually by an operator. The strategies mostly take the form of making changes to signal timings, but also included automating the process of getting the message out to drivers, stakeholders, etc.

**Torino – Traffic operational Centre**

Developed in 2014, the Traffic Operations Centre of the Piemonte Region, created and managed by 5T, is the operations centre for the real-time monitoring and supervision of traffic on over 34,000 kilometres of roads in Piemonte. The main functions of the regional TOC consist of: (i) managing the infrastructures installed on the territory (300 urban traffic lights, 3,000 traffic sensors, 26 info panels, 71 traffic cameras etc.); (ii) measuring the flow and speed

through a network of 56 fixed stations for detecting traffic flows; (iii) monitoring the transport of dangerous goods by means of 6 gates; (iv) providing forecasts on traffic conditions in 1 hour. The data collected from the fixed stations and also through the innovative technology of the Floating Car Data (data from fleets of private vehicles in motion) are integrated and processed with traffic events such as the weather conditions, closures, construction sites, strikes, reports by law enforcement, etc. to providing real-time information to travellers through the traffic information service “Muoversi in Piemonte”. The TOC also provides support to the local authorities for planning activities related to road transport and through consultation and analysis of traffic data history on specific databases.



### 3.5 Conclusions and recommendations for innovative measures within SUMP planning

It is complex to lead the development towards more sustainable cities, and a new way of thinking might be necessary to make further progress towards SUMP vision and targets in a city. The examples of tools, methods and approaches in this manual are given as an inspiration for a new or a different way to think when planning for mobility.

There is no given solution to reach success, but there are some steps to recommend as a key focus. The corner-stone is cooperation among stakeholders, thus many new innovative measures are too complex or too influenced by different stakeholders for a city to handle on its own. The nature of innovation is that the solutions are unknown in the beginning. Because of this it is important to create a platform where ideas can be realised. This is where approaches like Request for Information, Public Procurement of Innovative Solutions, City Labs and assessment methods for infrastructure projects can be solutions that create the right pre-conditions for innovation. When a platform is in place, the innovative measures that are generated must be made concrete with a valid business model and trialled in a real-world environment.

## 4. ENDNOTES

### 4.1 Output from SUMP-Ups

The other outputs from SUMP-Up are available on the project website [www.sumps-up.eu](http://www.sumps-up.eu).

- **Manual on the integration of measures and measure packages in a SUMP - Start**
- **Manual on the integration of measures and measure packages in a SUMP – Step-up**
- **Principles and guidelines for SUMP Action Plan development**
- **User needs analysis for take-up**
- **CIVITAS Tool Inventory**
- **SUMP Registry**



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